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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/758,364

Applicant(s)

CHOU ET AL.

Examiner

LEAH S. LOVELL

Art Unit

2885

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 9, 10, 12-17, 20, 21, 23 and 24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 9, 10, 12-17, 20, 21, 23 and 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 21 December 2007.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 21 December 2007 have been fully considered but they are not persuasive.

- Regarding the arguments against the rejection of claims 1-6 and 8-10 in view of Pelka (US 6,007,209):
 - Applicant asserts that Pelka fails to meet the limitations set forth by amended claim 1 because "Pelka...does not disclose or suggest that a portion of at least one of the plurality of sidewalls of the device case is inclined at an angle in an angle in the range of about 60 degrees to less than 90 degrees" because "the lower part [of the sidewall of Pelka] is curved in an unregulated form." However, the Examiner respectfully disagrees with the arguments. The lower portion of the sidewall is curved but it is well-known in the art that a curved surface is made of small, straight line segments, each having a different slope. Therefore, on the curved portion of the wall, the angle between the plane of the light sources and the angled wall is at least between 60 degrees and less than 90 degrees.

2. Applicant's arguments with respect to claim 12-17 and 19 have been considered but are moot in view of the new ground(s) of rejection as indicated below.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-6, 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Pelka (US 6,007,209).

Regarding claim 1, Pelka discloses an illumination device for display systems comprising:

a plurality of light sources [12, 13] distributed in a plane over an area 'S' [as indicated in prior office action].

at least one light diffusing plate [20] optically coupled to the plurality of light sources [figure 3] and having a light incidence area for receiving light from the plurality of light source [figure 3, surface closest to light sources (lower surface running horizontal)], wherein the light distribution surface area 'S' is at least greater than the light incidence area of the at least one light-diffusing plate [figure 4 shows the array and the area 'S' in which the lights are disposed; figure 3 shows the size of the area in relation to the light incidence area of the light-diffusing plate; figure A in previous office action]

a device case [14] enclosing the plurality of light sources [figure 3], wherein the device case comprises a plurality of sidewalls having an inner

surface [figure 4] is configured to reflect light [column 3, lines 59-67] from the plurality of light sources, wherein a portion of at least one of the plurality of sidewalls is inclined at an angle in the range of about 60 degrees to less than 90 degrees relative to the plane of the plurality of light sources [figure 2 shows the side walls having a vertical portion and a curved portion; The curved portion meets the limitation because it is clear in the art that curved portions have a slope, which defines an angle].

In regard to claim 2, Pelka discloses:

the display system comprises a display panel [26] having a display area for displaying images;

the display panel [26] is optically coupled to the at least one light-diffusing plate [20] [figure 3]; and

light incidence area of the at least one light-diffusing plate corresponds to the display area [figure 3].

Regarding claim 3, Pelka discloses:

the display area has a width 'A' and a length 'B' [any three dimensional object has at least a width and length];

each one of the plurality of light sources is separated from adjacent light sources by a pitch 'G' [figure 4 shows spacing]; and

the area S is confined to the range defined by $(A+G) \times (B+G) \leq S \leq (A+3G) \times (B+3G)$ [while the dimensions are not explicitly stated from figure 3 it can be interpreted that the area 'S' is approximately $(A+2G) \times (B+2G)$ which meets the limitation].

Regarding claim 4, Pelka discloses the display panel [26] is a liquid crystal display panel [column 3, line 23].

In regard to claim 5, Pelka discloses the plurality of light sources [12, 13] are light emitting diodes [abstract; all throughout column 4].

In regard to claim 6, Pelka discloses the plurality of light sources [12, 13] are distributed in an array [figure 4; column 4, line 28-column 5, line 19].

In regard to claim 9, Pelka discloses a portion of at least one of the plurality of sidewalls is curved [figure 3; the bottom portions of the vertical sidewalls are curved].

Regarding claim 10, Pelka discloses the inner surface of at least one of the plurality of sidewalls is configured to scatter light within the device case [column 3, line 60 since "diffusively" means to scatter light].

In regard to claim 23, Pelka discloses an illumination device for display systems comprising:

a plurality of light sources [12, 13] distributed in a plane over an area 'S' [as indicated in prior office action].

at least one light diffusing plate [20] optically coupled to the plurality of light sources [figure 3] and having a light incidence area for receiving light from the plurality of light source [figure 3, surface closest to light sources (lower surface running horizontal)], wherein the light distribution surface area 'S' is at least greater than the light incidence area of the at least one light-diffusing plate [figure 4 shows the array and the area 'S' in which the lights are disposed; figure 3 shows the size of the area in

relation to the light incidence area of the light-diffusing plate; figure A in previous office action]; and

a device case [14] enclosing the plurality of light sources [figure 3], wherein the device case comprises a plurality of sidewalls having an inner surface [figure 4] is configured to reflect light [column 3, lines 59-67] from the plurality of light sources, wherein the inner surface of at least one of the plurality of sidewalls is configured to scatter light within the device case [column 3, line 60 since "diffusively" means to scatter light] to further enhance illumination.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 12-17, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takayanagi et al (US 6,616,316) in view of Pelka (US 6,007,209).

In regard to claims 12 and 20, Takayanagi discloses an illumination device for a display system comprising:

a light guide plate [2] having at least one side edge surface and a light-emerging surface, wherein the at least one side edge surface is substantially orthogonal to the light-emerging surface [abstract]; and

a plurality of light sources [4a, 4b] optically coupled to the light guide plate [2] at the at least one side edge surface [optically coupled by the light conductive bar 3a, 3b], wherein the plurality of light sources [4a, 4b] is placed along a length 'M' [along 6] that is at least equal to or greater than a length of the at least one side edge surface of the light guide plate]; and

a device case [7] enclosing the plurality of light sources [figure 4], wherein the device case comprises a plurality of sidewalls having an inner surface and an outer surface configured to reflect light from the plurality of light sources [column 5, line 14; metal has inherent reflective properties].

Takayanagi discloses the sidewalls as being at a 90° angle however, Takayanagi fails to disclose the sidewalls as being at an angle less than 90°. A person of ordinary skill in the art, upon reading the reference, would also have recognized the desirability of improving the amount of light reflected by sidewalls of a frame for maximum light efficiency.

Pelka teaches that the curved sidewall [16] having a portion with an angle above 60° and less than 90°. Furthermore, Pelka teaches the use of a curved sidewall in a compact LCD display system. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to try curved sidewalls of Pelka in an attempt to improve the light efficiency of the sidewalls, as a person with ordinary skill has good reason to pursue the known options within his or her technical grasp. In turn, because curved sidewalls in an LCD system as claimed has the properties predicted by the prior

art, it would have been obvious to try curved sidewalls like those of Pelka in the system of Takayanagi. *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (2007).

In regard to claim 13, Takayanagi discloses:

the display system [L] comprises a display panel having a display area for displaying images;

the display panel [L] is optically coupled to the light guide plate [figures 2-4];

the display panel [L] is substantially parallel to the light-emerging surface of the light guide plate [figures 2-4]; and

at least one side of the display area is substantially parallel to the at least one side edge surface of the light guide plate [figures 2-4].

Regarding claim 14, Takayanagi discloses:

the at least one side of the display area that is substantially parallel to the at least one side edge surface of the light guide plate has a length 'B' [n3];

each one of the plurality of light sources is separated from the adjacent light sources by a pitch 'G' [n3 + (r3)/2]; and

the length 'M' is confined to the range defined by $(B+G) \leq M \leq (B+3G)$.

Regarding claim 15, Takayanagi discloses the display panel is a liquid crystal display panel [abstract].

In regard to claim 16, Takayanagi discloses the plurality of light sources are light emitting diodes [column 1, line 65].

In regard to claim 17, Takayanagi discloses the plurality of light sources are distributed in an array [more than 1 in a non-random pattern is an array].

Regarding claim 21, Takayanagi discloses the claimed invention having a metal frame. However, Takayanagi fails to disclose light diffusive sidewalls. It would have been obvious to one of ordinary skill in the art at the time of the invention to coat the sidewalls of the frame with a light diffusive material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin*, 125 USPQ 416. One would be motivated to do so because it is well known in the art to coat metal with a desired finish, in this case a light diffusive finish, in order to increase the optical efficiency of a metal. discloses the inner surface of at least one of the plurality of sidewalls of the device case is configured to scatter light within the device case.

7. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takayanagi et al (US 6,616,316).

Regarding claim 24, Takayanagi discloses an illumination device for a display system comprising:

a light guide plate [2] having at least one side edge surface and a light-emerging surface, wherein the at least one side edge surface is substantially orthogonal to the light-emerging surface [abstract]; and

a plurality of light sources [4a, 4b] optically coupled to the light guide plate [2] at the at least one side edge surface [optically coupled by the light conductive bar 3a, 3b], wherein the plurality of light sources [4a, 4b] is placed along a length 'M' [along 6] that is at least equal to or greater

than a length of the at least one side edge surface of the light guide plate];
and

a device case [7] enclosing the plurality of light sources [figure 4],
wherein the device case comprises a plurality of sidewalls having an inner
surface and an outer surface configured to reflect light from the plurality of
light sources [column 5, line 14; metal has inherent reflective properties].

Takayanagi discloses the claimed invention having a metal frame. However,
Takayanagi fails to disclose light diffusive sidewalls. It would have been obvious to one
of ordinary skill in the art at the time of the invention to coat the sidewalls of the frame
with a light diffusive material, since it has been held to be within the general skill of a
worker in the art to select a known material on the basis of its suitability for the intended
use. *In re Leshin*, 125 USPQ 416. One would be motivated to do so because it is well
known in the art to coat metal with a desired finish, in this case a light diffusive finish, in
order to increase the optical efficiency of a metal. discloses the inner surface of at least
one of the plurality of sidewalls of the device case is configured to scatter light within the
device case.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in
this Office action due to the change from "about 90 degrees" to "less than 90 degrees"
because doing so eliminates all right-angled side walls which had not been considered.
Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is
reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEAH S. LOVELL whose telephone number is (571)272-2719. The examiner can normally be reached on Monday through Friday 8 a.m. until 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee can be reached on (571) 272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Leah Lovell
Examiner
23 April 2008

/Jong-Suk (James) Lee/
Supervisory Patent Examiner, Art Unit 2885